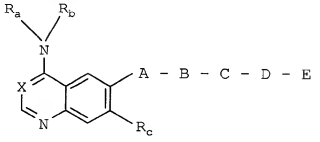
Patent Claims

1. Bicyclic heterocycles of general formula



, (I)

wherein

R_a denotes a hydrogen atom or a C_{1-4}-alkyl group,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 to R_3, whilst

R_1 and R_2, which may be identical or different, in each case denote a hydrogen, fluorine, chlorine, bromine or iodine atom,

a C_{1-4}-alkyl, hydroxy, C_{1-4}-alkoxy, C_{3-6}-cycloalkyl, C_{4-6}-cycloalkoxy, C_{2-5}-alkenyl or C_{2-5}-alkynyl group,

an aryl, aryloxy, arylmethyl or arylmethoxy group,

a C_{3-5}-alkenyloxy or C_{3-5}-alkynyloxy group, whilst the unsaturated moiety may not be linked to the oxygen atom,

a C_{1-4}-alkylsulfenyl, C_{1-4}-alkylsulfinyl, C_{1-4}-alkylsulfonyl, C_{1-4}-alkylsulfonyloxy, trifluoromethylsulfenyl, trifluoromethylsulfinyl or trifluoromethylsulfonyl group,

a methyl or methoxy group substituted by 1 to 3 fluorine atoms,

an ethyl or ethoxy group substituted by 1 to 5 fluorine atoms,

a cyano or nitro group or an amino group optionally substituted by one or two C_{1-4}-alkyl groups, wherein the substituents may be identical or different, or

R_1 together with R_2, if they are bound to adjacent carbon atoms, denote a -CH=CH-CH=CH, -CH=CH-NH or -CH=N-NH group and

R_3 denotes a hydrogen, fluorine, chlorine or bromine atom,

a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group,

X denotes a methine group substituted by a cyano group or a nitrogen atom,

A denotes an imino group optionally substituted by a C_{1-4}-alkyl group,

B denotes a carbonyl or sulfonyl group,

C denotes a 1,3-allenylene, 1,1- or 1,2-vinylene group which may be substituted in each case by one or two methyl groups or by a trifluoromethyl group,

an ethynylene group or

a 1,3-butadien-1,4-ylene group optionally substituted by 1 to 4 methyl groups or by a trifluoromethyl group,

D denotes an alkylene, -CO-alkylene or -SO_2-alkylene group wherein the alkylene moiety in each case contains 1 to 8 carbon atoms and additionally 1 to 4 hydrogen atoms in the alkylene moiety may be replaced by fluorine atoms, whilst the linking of the -CO-alkylene or -SO_2-alkylene group to the adjacent group C in each case must take place via the carbonyl or sulfonyl group,

a -CO-O-alkylene, -CO-NR_4-alkylene or -SO_2-NR_4-alkylene group wherein the alkylene moiety in each case contains 1 to 8 carbon atoms, whilst the linking to the adjacent group C in each case must take place via the carbonyl or sulfonyl group, wherein

R_4 denotes a hydrogen atom or a C_{1-4}-alkyl group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl or sulfonyl group,

E denotes an amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group wherein the alkyl moieties may be identical or different,

a C_{2-4}-alkylamino group wherein the alkyl moiety is substituted in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, whilst

R_5 denotes a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group,

a 4- to 7-membered alkyleneimino group optionally substituted by one or two methyl groups or

a 6- to 7-membered alkyleneimino group optionally substituted by one or two methyl groups wherein in each case a methylene group in position 4 is replaced by an oxygen or sulfur atom, by a sulfinyl, sulfonyl, imino or N-(C_{1-4}-alkyl)-imino group,

an N-(C_{1-4}-alkyl)-N-(C_{2-4}-alkyl)-amino group wherein the C_{2-4}-alkyl moiety is substituted in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, whilst R_5 is as hereinbefore defined,

a di-(C_{2-4}-alkyl)-amino group wherein the two C_{2-4}-alkyl moieties are substituted in each case in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, whilst the substituents may be identical or different and R_5 is as hereinbefore defined,

a C_{3-7}-cycloalkylamino or C_{3-7}-cycloalkyl-C_{1-3}-alkylamino group wherein in each case the nitrogen atom may be substituted by a further C_{1-4}-alkyl group,

an amino or C_{1-4}-alkylamino group wherein in each case the nitrogen atom is substituted by a tetrahydrofuran-3-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, tetrahydrofuranylmethyl, 1-(tetrahydrofuran-3-yl)-piperidin-4-yl, 1-(tetrahydropyran-3-yl)-piperidin-4-yl, 1-(tetrahydropyran-4-yl)-piperidin-4-yl, 3-pyrrolidinyl, 3-piperidinyl, 4-piperidinyl, 3-hexahydro-azepinyl or 4-hexahydro-azepinyl group optionally substituted by 1 to 3 C_{1-4}-alkyl groups,

a 4- to 7-membered alkyleneimino group optionally substituted by 1 to 4 C_{1-2}-alkyl groups, which may be substituted by the group R_5 either at a cyclic carbon atom or at one of the alkyl groups, whilst R_5 is as hereinbefore defined,

a piperidino group substituted by a tetrahydrofuranyl, tetrahydropyranyl or tetrahydrofuranylmethyl group,

a 6- to 7-membered alkyleneimino group optionally substituted by 1 or 2 C_{1-2}-alkyl groups wherein a methylene group in each case is replaced in the 4 position by an oxygen or sulfur atom, by an imino group substituted by the group R_6, or by a sulfinyl or sulfonyl group, whilst

R_6 denotes a hydrogen atom, a C_{1-4}-alkyl, 2-methoxy-ethyl, 3-methoxy-propyl, C_{3-7}-cycloalkyl, C_{3-7}-cycloalkyl-C_{1-4}-alkyl, tetrahydrofuran-3-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, tetrahydrofuranylmethyl, formyl, C_{1-4}-alkylcarbonyl, C_{1-4}-alkylsulfonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl or di-(C_{1-4}-alkyl)-aminocarbonyl group,

an imidazolyl group optionally substituted by 1 to 3 methyl groups,

a C_{5-7}-cycloalkyl group wherein a methylene group is replaced by an oxygen or sulfur atom, by an imino group substituted by the group R_6, by a sulfinyl or sulfonyl group, whilst R_6 is as hereinbefore defined,

or D together with E denotes a hydrogen, fluorine or chlorine atom,

a C_{1-4}-alkyl group optionally substituted by 1 to 5 fluorine atoms,

a C_{3-6}-cycloalkyl group,

an aryl, heteroaryl, C_{1-4}-alkylcarbonyl or arylcarbonyl group,

a carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl or di-(C_{1-4}-alkyl)-aminocarbonyl group or

a carbonyl which is substituted by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group may be replaced in the 4 position by an oxygen or sulfur atom, by an imino group substituted by the group R_6, by a sulfinyl or sulfonyl group, whilst R_6 is as hereinbefore defined, and

R_c denotes a C_{4-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-6}-alkoxy group wherein the cycloalkyl moiety in each case may be substituted by a C_{1-3}-alkyl, hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino, di-(C_{1-4}-alkyl)-amino, pyrrolidino, piperidino, morpholino, piperazino, N-(C_{1-2}-alkyl)-piperazino, hydroxy-C_{1-2}-alkyl, C_{1-4}-alkoxy-C_{1-2}-alkyl, amino-C_{1-2}-alkyl, C_{1-4}-alkylamino-C_{1-2}-alkyl, di-(C_{1-4}-alkyl)-amino-C_{1-2}-alkyl, pyrrolidino-C_{1-2}-alkyl, piperidino-C_{1-2}-alkyl, morpholino-C_{1-2}-alkyl, piperazino-C_{1-2}-alkyl or N-(C_{1-2}-alkyl)-piperazino-C_{1-2}-alkyl group, whilst the abovementioned monosubstituted cycloalkyl moieties may additionally be substituted by a C_{1-3}-alkyl group,

a tetrahydrofuran-3-yloxy, tetrahydropyran-3-yloxy, tetrahydropyran-4-yloxy or tetrahydrofuranylmethoxy group,

an C_{2-4}-alkoxy group substituted in β-, γ-, or δ-position with regard to the oxygen atom by an azetidin-1-yl, 4-methyl-homopiperazino or 4-ethyl-homopiperazino group,

a 3-pyrrolidinyloxy, 2-pyrrolidinyl-C_{1-4}-alkyloxy, 3-pyrrolidinyl-C_{1-4}-alkyloxy, 3-piperidinyloxy, 4-piperidinyloxy, 2-piperidinyl-C_{1-4}-alkyloxy, 3-piperidinyl-C_{1-4}-alkyloxy, 4-piperidinyl-C_{1-4}-alkyloxy, 3-hexahydro-azepinyloxy, 4-hexahydro-azepinyloxy, 2-hexahydro-azepinyl-C_{1-4}-alkyloxy, 3-He-xahydro-azepinyl-C_{1-4}-alkyloxy or 4-hexahydro-azepinyl-C_{1-4}-alkyloxy group wherein in each case the cyclic nitrogen atom is substituted by the group R_6, where R_6 is as hereinbefore defined, whilst

by the aryl moieties mentioned in the definition of the abovementioned groups is meant a phenyl group which in each case may be monosubstituted by R_7, mono-, di- or trisubstituted by R_8 or monosubstituted by R_7 and additionally mono- or disubstituted by R_8, wherein the substituents may be identical or different and

R_7 denotes a cyano, carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl, di-(C_{1-4}-alkyl)-aminocarbonyl, C_{1-4}-alkylsulfenyl, C_{1-4}-alkylsulfinyl, C_{1-4}-alkylsulfonyl, hydroxy, C_{1-4}-alkylsulfonyloxy, trifluoromethyloxy, nitro, amino, C_{1-4}-alkylamino, di-(C_{1-4}-alkyl)-amino, C_{1-4}-alkylcarbonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylcarbonylamino, C_{1-4}-alkylsulfonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylsulfonylamino, aminosulfonyl, C_{1-4}-alkylaminosulfonyl or di-(C_{1-4}-alkyl)-aminosulfonyl group or a carbonyl group which is substituted by a 5- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulfur atom, by a sulfinyl, sulfonyl, imino or N-(C_{1-4}-alkyl)-imino group, and

R_8 denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group or

two groups R_8, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

and the heteroaryl groups mentioned in the definition of the abovementioned groups include a 5-membered heteroaromatic group which contains an imino group, an oxygen or sulfur atom or an imino group, an oxygen or sulfur atom and one or two nitrogen atoms, or

a 6-membered heteroaromatic group which contains one, two or three nitrogen atoms,

whilst the abovementioned 5-membered heteroaromatic groups may be substituted in each case by 1 or 2 methyl or ethyl groups and the abovementioned 6-membered heteroaromatic groups may be substituted in each case by 1 or 2 methyl or ethyl groups or by a fluorine, chlorine, bromine or iodine atom or by a trifluoromethyl, hydroxy, methoxy or ethoxy group,

the tautomers, stereoisomers and salts thereof.

2. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 to R_3, whilst

R_1 and R_2, which may be identical or different, in each case denote a hydrogen, fluorine, chlorine, bromine or iodine atom,

a C_{1-4}-alkyl, hydroxy, C_{1-4}-alkoxy, C_{3-6}-cycloalkyl, C_{4-6}-cycloalkoxy, C_{2-5}-alkenyl or C_{2-5}-alkynyl group,

an aryl, aryloxy, arylmethyl or arylmethoxy group,

a methyl or methoxy group substituted by 1 to 3 fluorine atoms,

a cyano or nitro group and

R_3 denotes a hydrogen, fluorine, chlorine or bromine atom,

a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group,

X denotes a methine group substituted by a cyano group or a nitrogen atom,

A denotes an imino group,

B denotes a carbonyl or sulfonyl group,

C denotes a 1,3-allenylene, 1,1- or 1,2-vinylene group,

an ethynylene or 1,3-butadien-1,4-ylene group,

D denotes an alkylene, -CO-alkylene or -SO_2-alkylene group wherein the alkylene moiety in each case contains 1 to 4 carbon atoms and additionally 1 to 4 hydrogen atoms in the alkylene moiety may be replaced by fluorine atoms, whilst the linking of the -CO-alkylene or -SO_2-alkylene group to the adjacent group C in each case must take place via the carbonyl or sulfonyl group,

a -CO-O-alkylene, -CO-NR_4-alkylene or -SO_2-NR_4-alkylene group wherein the alkylene moiety in each case contains 1 to 4 carbon atoms, whilst the linking to the adjacent group C in each case must take place via the carbonyl or sulfonyl group, wherein

R_4 denotes a hydrogen atom or a C_{1-4}-alkyl group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond,

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl or sulfonyl group,

E denotes a di-(C_{1-4}-alkyl)-amino group wherein the alkyl moieties may be identical or different,

an N-(C_{1-4}-alkyl)-N-(C_{2-4}-alkyl)-amino group wherein the C_{2-4}-alkyl moiety is substituted in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, where

R_5 denotes a hydroxy, C_{1-4}-alkoxy or di-(C_{1-4}-alkyl)-amino group,

a 4- to 7-membered alkyleneimino group optionally substituted by one or two methyl groups or

a 6- to 7-membered alkyleneimino group optionally substituted by one or two methyl groups wherein in each case a methylene group in position 4 is replaced by an oxygen or sulfur atom, or by a sulfinyl, sulfonyl or N-(C_{1-4}-alkyl)-imino group,

a di-(C_{2-4}-alkyl)-amino group wherein the two C_{2-4}-alkyl moieties in each case are substituted in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, wherein the substituents may be identical or different and R_5 is as hereinbefore defined,

a C_{3-7}-cycloalkylamino or C_{3-7}-cycloalkyl-C_{1-3}-alkylamino group wherein in each case the nitrogen atom is substituted by a further C_{1-4}-alkyl group,

a C_{1-4}-alkylamino group wherein the nitrogen atom is substituted by a tetrahydrofuran-3-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, tetrahydrofuranylmethyl, 1-(tetrahydrofuran-3-yl)-piperidin-4-yl, 1-(tetrahydropyran-3-yl)-piperidin-4-yl, 1-(tetrahydropyran-4-yl)-piperidin-4-yl, N-(C_{1-2}-alkyl)-3-pyrrolidinyl, N-(C_{1-2}-alkyl)-3-piperidinyl, N-(C_{1-2}-alkyl)-4-piperidinyl, N-(C_{1-2}-alkyl)-3-hexahydro-azepinyl or N-(C_{1-2}-alkyl)-4-hexahydro-azepinyl group,

an 4- to 7-membered alkyleneimino group optionally substituted by 1 to 4 methyl groups, which may be substituted either at a cyclic carbon atom or at one of the methyl groups by the group R_5, where R_5 is as hereinbefore defined,

a piperidino group substituted by a tetrahydrofuranyl, tetrahydropyranyl or tetrahydrofuranylmethyl group,

a 6- to 7-membered alkyleneimino group optionally substituted by 1 or 2 methyl groups wherein in each case a methylene group is replaced in the 4 position by an oxygen or sulfur atom, by an imino group substituted by the group R_6, by a sulfinyl or sulfonyl group, whilst

R_6 denotes a C_{1-4}-alkyl, 2-methoxy-ethyl, 3-methoxy-propyl, C_{3-7}-cycloalkyl, C_{3-7}-cycloalkyl-C_{1-4}-alkyl, tetrahydrofuran-3-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, tetrahydrofuranylmethyl, formyl, C_{1-4}-alkylcarbonyl, C_{1-4}-alkylsulfonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl or di-(C_{1-4}-alkyl)-aminocarbonyl group,

a C_{5-7}-cycloalkyl group wherein a methylene group is replaced by an oxygen or sulfur atom, by an imino group substituted by the group R_6, or by a sulfinyl or sulfonyl group, where R_6 is as hereinbefore defined,

or D together with E denotes a hydrogen, fluorine or chlorine atom,

a C_{1-4}-alkyl group optionally substituted by 1 to 5 fluorine atoms,

a C_{3-6}-cycloalkyl group,

an aryl, C_{1-4}-alkylcarbonyl or arylcarbonyl group,

a carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl or di-(C_{1-4}-alkyl)-aminocarbonyl group or

a carbonyl group which is substituted by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulfur atom, by an imino group substituted by the group R_6, or by a sulfinyl or sulfonyl group, where R_6 is as hereinbefore defined, and

R_c denotes a C_{4-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-6}-alkoxy group wherein the cycloalkyl moiety in each case may be substituted by a C_{1-3}-alkyl, hydroxy, C_{1-4}-alkoxy, di-(C_{1-4}-alkyl)-amino, pyrrolidino, piperidino, morpholino, N-(C_{1-2}-alkyl)-piperazino, hydroxy-C_{1-2}-alkyl, C_{1-4}-alkoxy-C_{1-2}-alkyl, di-(C_{1-4}-alkyl)-amino-C_{1-2}-alkyl, pyrrolidino-C_{1-2}-alkyl, piperidino-C_{1-2}-alkyl, morpholino-C_{1-2}-alkyl or N-(C_{1-2}-alkyl)-piperazino-C_{1-2}-alkyl group, whilst the abovementioned monosubstituted cycloalkyl moieties may additionally be substituted by a C_{1-3}-alkyl group,

a tetrahydrofuran-3-yloxy, tetrahydropyran-3-yloxy, tetrahydropyran-4-yloxy or tetrahydrofuranylmethoxy group,

an C_{2-4}-alkoxy group substituted in β-, γ-, or δ-position with regard to the oxygen atom by an azetidin-1-yl, 4-methyl-homopiperazino or 4-ethyl-homopiperazino group,

a 3-pyrrolidinyloxy, 2-pyrrolidinyl-C_{1-4}-alkyloxy, 3-pyrrolidinyl-C_{1-4}-alkyloxy, 3-piperidinyloxy, 4-piperidinyloxy, 2-piperidinyl-C_{1-4}-alkyloxy, 3-piperidinyl-C_{1-4}-alkyloxy, 4-piperidinyl-C_{1-4}-alkyloxy, 3-hexahydro-azepinyloxy, 4-hexahydro-azepinyloxy, 2-hexahydro-azepinyl-C_{1-4}-alkyloxy, 3-hexahydro-azepinyl-C_{1-4}-alkyloxy or 4-hexahydro-azepinyl-C_{1-4}-alkyloxy group wherein in each case the cyclic nitrogen atom is substituted by the group R_6, where R_6 is as hereinbefore defined, whilst

by the aryl moieties mentioned in the definition of the abovementioned groups is meant a phenyl group which may in each case be monosubstituted by R_7, mono-, di- or trisubstituted by R_8 or monosubstituted by R_7 and additionally mono- or disubstituted by R_8, wherein the substituents may be identical or different and

R_7 denotes a cyano, carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl, di-(C_{1-4}-alkyl)-aminocarbonyl, C_{1-4}-alkylsulfenyl, C_{1-4}-alkylsulfinyl, C_{1-4}-alkylsulfonyl, hydroxy, C_{1-4}-alkylsulfonyloxy, trifluoromethyloxy, nitro, amino, C_{1-4}-alkylamino, di-(C_{1-4}-alkyl)-amino, C_{1-4}-alkylcarbonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylcarbonylamino, C_{1-4}-alkylsulfonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylsulfonylamino, aminosulfonyl, C_{1-4}-alkylaminosulfonyl or di-(C_{1-4}-alkyl)-

aminosulfonyl group or a carbonyl group which is substituted by a 5- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group may be replaced in the 4 position by an oxygen or sulfur atom, by a sulfinyl, sulfonyl, imino or N-(C_{1-4}-alkyl)-imino group, and

R_8 denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group or

two groups R_8, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, stereoisomers and salts thereof.

3. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 and R_2, where

R_1 and R_2, which may be identical or different, in each case denote a hydrogen, fluorine, chlorine or bromine atom,

a methyl, trifluoromethyl or methoxy group,

X denotes a nitrogen atom,

A denotes an imino group,

B denotes a carbonyl group,

C denotes a 1,2-vinylene group,

an ethynylene or 1,3-butadien-1,4-ylene group,

D denotes a C_{1-4}-alkylene group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond,

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl group,

E denotes a di-(C_{1-4}-alkyl)-amino group wherein the alkyl moieties may be identical or different,

an N-(C_{1-4}-alkyl)-N-(C_{2-4}-alkyl)-amino group wherein the C_{2-4}-alkyl moiety is substituted in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, whilst

R_5 denotes a hydroxy, C_{1-3}-alkoxy or di-(C_{1-3}-alkyl)-amino group,

a pyrrolidino, piperidino or morpholino group,

a di-(C_{2-4}-alkyl)-amino group wherein the two C_{2-4}-alkyl moieties in each case are substituted in β-, γ-, or δ-position with regard to the nitrogen atom of the amino group by the group R_5, wherein the substituents may be identical or different and R_5 is as hereinbefore defined,

an C_{1-4}-alkylamino group substituted at the nitrogen atom by a tetrahydrofuran-3-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, tetrahydrofuranylmethyl, 1-(C_{1-2}-alkyl)-pyrrolidin-3-yl, 1-(C_{1-2}-alkyl)-piperidin-3-yl, 1-(C_{1-2}-alkyl)-piperidin-4-yl, 1-(tetrahydrofuran-3-yl)-piperidin-4-yl, 1-(tetrahydropyran-3-yl)-piperidin-4-yl or 1-(tetrahydropyran-4-yl)-piperidin-4-yl group,

a C_{3-5}-cycloalkylamino or C_{3-5}-cycloalkyl-C_{1-3}-alkylamino group wherein in each case the nitrogen atom is substituted by a further C_{1-3}-alkyl group,

a 5- to 7-membered alkyleneimino group optionally substituted by 1 or 2 methyl groups which may be substituted either at a cyclic carbon atom or at one or the methyl groups by the group R_5, where R_5 is as hereinbefore defined, or

a piperidino group substituted by a tetrahydrofuranyl, tetrahydropyranyl or tetrahydrofuranylmethyl group,

a piperidino group optionally substituted by 1 or 2 methyl groups wherein the methylene group is replaced in the 4 position by an oxygen or sulfur atom, by sulfinyl or sulfonyl group or by an imino group substituted by the group R_6, whilst

R_6 denotes a C_{1-3}-alkyl, 2-methoxy-ethyl, 3-methoxy-propyl, C_{3-6}-cycloalkyl, C_{3-6}-cycloalkyl-C_{1-3}-alkyl, tetrahydrofuran-3-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, tetrahydrofuranylmethyl, C_{1-3}-alkylcarbonyl, C_{1-3}-alkylsulfonyl, aminocarbonyl, C_{1-3}-alkylaminocarbonyl or di-(C_{1-3}-alkyl)-aminocarbonyl group,

or D together with E denotes a hydrogen atom,

a C_{1-3}-alkyl group,

an aryl or C_{1-4}-alkylcarbonyl group or

a C_{1-4}-alkoxycarbonyl group,

R_c denotes a C_{4-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-4}-alkoxy group wherein the cycloalkyl moiety in each case may be substituted by a C_{1-3}-alkyl or C_{1-3}-alkoxy group,

a tetrahydrofuran-3-yloxy, tetrahydropyran-3-yloxy, tetrahydropyran-4-yloxy or tetrahydrofuranylmethoxy group,

an C_{2-4}-alkoxy group substituted in β-, γ-, or δ-position with regard to the oxygen atom by an azetidin-1-yl, 4-methyl-homopiperazino or 4-ethyl-homopiperazino group,

a 3-pyrrolidinyloxy, 2-pyrrolidinyl-C_{1-3}-alkyloxy, 3-pyrrolidinyl-C_{1-3}-alkyloxy, 3-piperidinyloxy, 4-piperidinyloxy, 2-piperidinyl-C_{1-3}-alkyloxy, 3-piperidinyl-C_{1-3}-alkyloxy, 4-piperidinyl-C_{1-3}-alkyloxy, 3-hexahydro-azepinyloxy, 4-hexahydro-azepinyloxy, 2-hexahydro-azepinyl-C_{1-3}-alkyloxy, 3-hexahydro-azepinyl-C_{1-3}-alkyloxy or 4-hexahydro-azepinyl-C_{1-3}-alkyloxy group wherein in each case the cyclic nitrogen atom is substituted by a methyl or ethyl group, whilst

by the aryl moieties mentioned in the definition of the abovementioned groups is meant a phenyl group which may be mono-, di- or trisubstituted by R_8, wherein the substituents may be identical or different and

R_8 denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group,

the tautomers, stereoisomers and salts thereof.

4. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a phenyl, benzyl or 1-phenylethyl group, whilst the phenyl nucleus is substituted in each case by the radicals R_1 and R_2, whilst

R_1 and R_2, which may be identical or different, each denotes a hydrogen, fluorine, chlorine or bromine atom,

X denotes a nitrogen atom,

A denotes an imino group,

B denotes a carbonyl group,

C denotes a 1,2-vinylene, ethinylene or 1,3-butadien-1,4-ylene group,

D denotes an C_{1-3}-alkylene group,

E denotes a Di-(C_{1-4}-alkyl)-amino group, wherein the alkyl moieties may be identical or different,

a methylamino or ethylamino group each substituted at the nitrogen atom by a 2-methoxy-ethyl, 1-methoxy-2-propyl, 2-methoxypropyl, 3-methoxypropyl, tetrahydrofuran-3-yl, tetrahydropyran-4-yl, tetrahydrofuran-2-ylmethyl, 1-methylpiperidin-4-yl, 1-ethyl-piperidin-4-yl, 1-(tetrahydrofuran-3-yl)-piperidin-4-yl, cyclopropyl or cyclopropylmethyl group,

a Bis(2-methoxyethyl)amino group,

a pyrrolidino, piperidino or morpholino group each optionally substituted by one or two methyl groups,

a piperazino group substituted in 4-position by a methyl, ethyl, cyclopropyl, cyclopropylmethyl, 2-methoxy-ethyl, tetrahydrofuran-3-yl, tetrahydropyran-4-yl or tetrahydrofuran-2-ylmethyl group,

a thiomorpholino, S-oxidothiomorpholino or S,S-dioxidothiomorpholino group,

a 2-(methoxymethyl)pyrrolidino, 2-(ethoxymethyl)pyrrolidino, 4-hydroxypiperidino, 4-methoxypiperidino, 4-ethoxypiperidino, 4-(tetrahydrofuran-3-yl)piperidino or 4-morpholinopiperidino group

or D together with E denote a hydrogen atom, a methyl, phenyl, methoxycarbonyl or ethoxycarbonyl group and

R_c denotes a cyclopropylmethoxy, cyclobutylmethoxy, cyclopentylmethoxy or cyclohexylmethoxy group,

a cyclobutyloxy, cyclopentyloxy or cyclohexyloxy group,

a tetrahydrofuran-3-yloxy, tetrahydropyran-4-yloxy or tetrahydrofuran-2-ylmethoxy group,

a straight chained C_{2-4}-alkoxy group terminally substituted by an azetidin-1-yl, 4-methyl-homopiperazino or 4-ethyl-homopiperazino group,

a 1-methyl-piperidin-4-yloxy or 1-ethyl-piperidin-4-yloxy group,

a (1-methyl-piperidin-4-yl)-C_{1-3}-alkyloxy or (1-ethyl-piperidin-4-yl)-C_{1-3}-alkyloxy group,

the tautomers, stereoisomers and salts thereof.

5. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a 1-phenylethyl group or a phenyl group wherein the phenyl nucleus is substituted by the radicals R_1 and R_2, whilst

R_1 and R_2, which may be identical or different, each denote a hydrogen, fluorine, chlorine or bromine atom,

X denotes a nitrogen atom,

A denotes an imino group,

B denotes a carbonyl group,

C denotes a 1,2-vinylene, ethinylene or 1,3-butadien-1,4-ylene group,

D denotes a methylene group,

E denotes a dimethylamino, diethylamino, Bis(2-methoxyethyl)amino, *N*-methyl-*N*-(2-methoxyethyl)amino, *N*-ethyl-*N*-(2-methoxyethyl)amino, *N*-methyl-*N*-cyclopropylamino, *N*-methyl-*N*-cyclopropylmethyl-amino, *N*-methyl-*N*-(1-methoxy-2-propyl)amino, *N*-methyl-*N*-(2-methoxypropyl)amino, *N*-methyl-*N*-(3-methoxypropyl)amino, *N*-methyl-*N*-(tetrahydrofuran-3-yl)amino, *N*-methyl-*N*-(tetrahydropyran-4-yl)amino, *N*-methyl-*N*-(tetrahydrofuran-2-ylmethyl)amino or *N*-methyl-*N*-(1-methylpiperidin-4-yl)amino group,

a pyrrolidino, piperidino or morpholino group each optionally substituted by one or two methyl groups,

a piperazino group substituted in 4-position by a methyl, ethyl, cyclopropylmethyl or 2-methoxyethyl group,

a S-oxidothiomorpholino group,

a 2-(methoxymethyl)pyrrolidino, 4-hydroxypiperidino or 4-methoxypiperidino group

or D together with E denote a hydrogen atom, a methyl, phenyl or ethoxycarbonyl group, and

R_c denotes a cyclopropylmethoxy, cyclobutyloxy or cyclopentyloxy group,

a tetrahydrofuran-3-yloxy, tetrahydropyran-4-yloxy or tetrahydrofuran-2-ylmethoxy group,

a straight chained C_{2-4}-alkoxy group terminally substituted by an azetidin-1-yl or 4-methylhomopiperazino group,

a 1-methyl-piperidin-4-yloxy group or

a (1-methylpiperidin-4-yl)-C_{1-3}-alkyloxy group,

the tautomers, stereoisomers and salts thereof.

6. The following compounds of general formula I according to claim 1:

(a) 4-[(3-Chloro-4-fluorophenyl)amino]-7-[3-(1-methylpiperidin-4-yl)propyloxy]-6-[(vinylcarbonyl)amino]quinazoline,

(b) 4-[(3-Chloro-4-fluorophenyl)amino]-6-{[4-(*N*,*N*-diethylamino)-1-oxo-2-buten-1-yl]amino}-7-cyclopropylmethoxyquinazoline and

(c) 4-[(3-Chloro-4-fluorophenyl)amino]-6-{[4-(morpholin-4-yl)-1-oxo-2-buten-1-yl]amino}-7-cyclopropylmethoxyquinazoline

as well as the salts thereof.

7. Physiologically acceptable salts of the compounds according to at least one of claims 1 to 6 with inorganic or organic acids or bases.

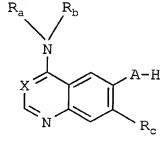
8. Pharmaceutical compositions containing a compound according to at least one of claims 1 to 6 or a physiologically acceptable salt according to claim 7 optionally together with one or more inert carriers and/or diluents.

9. Use of a compound according to at least one of claims 1 to 7 for preparing a pharmaceutical composition which is suitable for treating benign or malignant tumors, for preventing and treating diseases of the airways and lungs and for treating diseases of the gastrointestinal tract and the bile duct and gall bladder.

10. Process for preparing a pharmaceutical composition according to claim 8, characterized in that a compound according to at least one of claims 1 to 7 is incorporated in one or more inert carriers and/or diluents by a non-chemical method.

11. Process for preparing the compounds of general formula I according to claims 1 to 7, characterized in that

a) a compound of general formula



, (II)

wherein

R_a to R_c, A and X are defined as in claims 1 to 6, is reacted with a compound of general formula

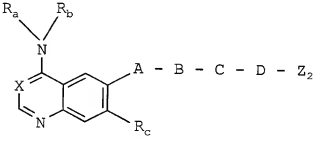
$$Z_1\text{–}B\text{–}C\text{–}D\text{–}E \qquad \text{(III)}$$

wherein

B to E are defined as in claims 1 to 6 and

Z_1 denotes a leaving group, or

b) in order to prepare compounds of general formula I wherein the group E is linked to the group D via a nitrogen atom, a compound of general formula



, (IV)

wherein

R_a to R_c, A to D and X are defined as in claims 1 to 6 and

Z_2 denotes a leaving group, is reacted with a compound of general formula

$$H\text{–}E' \qquad \text{(V)}$$

wherein

E' denotes one of the groups mentioned for E in claims 1 to 6 which is linked to the group D via a nitrogen atom, and

if desired a compound of general formula I thus obtained which contains an amino, alkylamino or imino group is converted by acylation or sulfonylation into a corresponding acyl or sulfonyl compound of general formula I and/or

a compound of general formula I thus obtained which contains an amino, alkylamino or imino group is converted by alkylation or reductive alkylation into a corresponding alkyl compound of general formula I and/or

a compound of general formula I thus obtained which contains a carboxy or hydroxyphosphoryl group is converted by esterification into a corresponding ester of general formula I and/or

a compound of general formula I thus obtained which contains a carboxy or ester group is converted by reaction with a corresponding amine into a corresponding amide of general formula I and/or

if necessary any protecting group used during the above reactions is cleaved again and/or

if desired a compound of general formula I thus obtained is resolved into its stereoisomers and/or

a compound of general formula I thus obtained is converted into the salts thereof, more particularly, for pharmaceutical use, into the physiologically acceptable salts thereof.